

Breathing the Power Within



Breathing awareness for our health and well-being

3 quick and easy exercises for breath awareness and relaxation

Ana Melikian, Ph.D | Coach & Speaker

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If you are reading this eBook, you're probably aware of how important breathing is for your health, well-being and life in general. But maybe you are not aware of how special breathing can be. Breathing can be the key for unlocking many of our inner resources, and can be a bridge to access many functions that usually are outside our control.

In this eBook, you are going to find an overview of why breathing awareness is so important and some notes about our breathing physiology. You are also going to have access to specific instructions to 3 breathing exercises including links to audio files. And if you wish to go deeper, you can explore the list of resources provided at the end.



Importance of Breathing Awareness

Breathing is a bodily function which can be controlled both involuntarily and voluntarily. When we are asleep, our breathing is controlled automatically and involuntarily. For most people, during most of the day their breathing is also an involuntary activity. We don't have to think about it, or put any effort into it, it just happens. However, there are situations where we are controlling our breathing more or less voluntarily. For instance, when we blow up a balloon, or when we hold our breath for a moment in order to avoid an unpleasant smell, or when we are blowing soap bubbles! In these situations, we are controlling our breath intentionally.

But, why is it important to be able to control our breath voluntarily?

One of the reasons has to do with how our nervous system is organized (see Table 1). As human beings, we have the central nervous system with the brain and spinal cord, and the peripheral nervous system that is formed by all the nerves that connect the central nervous system with the rest of the body. Our peripheral nervous system can be divided into the following two systems:

- Somatic Nervous System (which includes the nerves that control many of our muscles and the external sensory receptors), and
- Autonomic Nervous System (which controls our internal organs, and is responsible for the automatic functions necessary to maintain the body's homeostasis, as for instance: blood pressure, gastrointestinal secretions, body temperature, and so on).

Nervous System	Central Nervous System	Brain		
		Spinal Cord		
	Peripheral Nervous System	by direction	Sensory / Afferent system	
			Motor / Efferent system	
		by function	Somatic Nervous System	
			Autonomic Nervous System	Sympathetic NS
Parasympathetic NS				
Enteric NS				

Table 1: Human Nervous System

Since our breathing can be regulated involuntarily and voluntarily, it involves both the autonomic and the somatic nervous systems.

This characteristic is very interesting and important since it means that by controlling our breath by the voluntary actions of our muscles (somatic nervous system), we are influencing at will, processes of the autonomic nervous system, which by definition are difficult and almost impossible to control voluntarily. In other words, breathing gives us a bridge out to access and control the autonomic nervous systems, including the imbalances of its components: the sympathetic (responsible for preparing the body for fight or flight) and parasympathetic systems (responsible for relaxation, rest and digestion).

These two subsystems, the sympathetic and the parasympathetic, are supposed to balance each other. For instance, a common situation for our ancestors; was having to run from a dangerous animal (e.g., a lion that wanted to eat them). In those circumstances, it is very useful to have a body system that allows our eyes to focus and see better, accelerates our heart and respiratory rates in order to provide more oxygen to keep the body running out of danger, and so on. Yet when in a safe place, it is equally important to have a system that counterbalances this, and allows the body to go back to a more relaxed state where we can digest our food and regain energy and so on.

The problem in our modern society is that we are too much in the fight and flight mode, even without any danger around. We don't worry about being eaten by lions any more, yet we create virtual lions that keep us in an active and over-stimulated mode. This unbalance leads to chronic stress and anxiety which, needless to say, contributes to many health problems and decreases to our general wellness.

Through breathing awareness and control we can correct the over-stimulation of the sympathetic mode and other functions of the autonomic nervous systems. Think about the potentialities that this has to promote our health and well-being!

Breathing Physiology

From a medical perspective, the respiration (breathing in and breathing out) has the function of transporting oxygen (O₂) into the body and carbon dioxide (CO₂) out of the body. It is a cycling function which involves the respiratory and the circulatory system. At a cellular level, we need oxygen in order to release the energy from the carbohydrates and fats that we eat. The pulmonary system transports oxygen from the atmosphere through the nose and mouth to the main airways until it arrives to the lungs. In the lungs, in very tiny air sacs called alveoli, a gas exchange happens that enriches the blood with oxygen (mainly by its binding with hemoglobin) and cleans the blood from carbon dioxide (a toxic waste by-product of cellular respiration). At this point the circulatory system (through the arteries) takes over and transports the oxygen to all cells in the body. Then the hemoglobin releases the oxygen and captures the waste carbon dioxide, which in turn is taken by the blood back to the lungs to be released (through the veins).

MECHANICS OF BREATHING

To understand the mechanics of breathing, it's crucial to go beyond the identification of the organs of the respiratory system (i.e., air passages: nose, throat, wind pipe, bronchi; and the lungs with their alveoli). It is important to know that the lungs are situated within a bony structure, the thoracic cage (formed by the ribs, sternum, spinal column, clavicle, cartilage and articulations, etc.), and that this bony framework is a flexible structure which is connected to muscles that have an important role in breathing.

The primary respiratory muscle is the diaphragm that is situated at the base of the lungs, separating and connecting the thorax and the abdomen (see Figure 1). It is like an upside-down bowl, that when relaxed is up (expiration) and when contracted goes down (inspiration).

So, when we breathe in deeply, the belly has the tendency to come out (because the diaphragm pushes the abdominal organs down and since these organs are not contained by a bony frame they bulge out); and when we breathe out, the belly has the tendency to come in. It is difficult to grasp how the diaphragm works since it's a muscle difficult to feel.

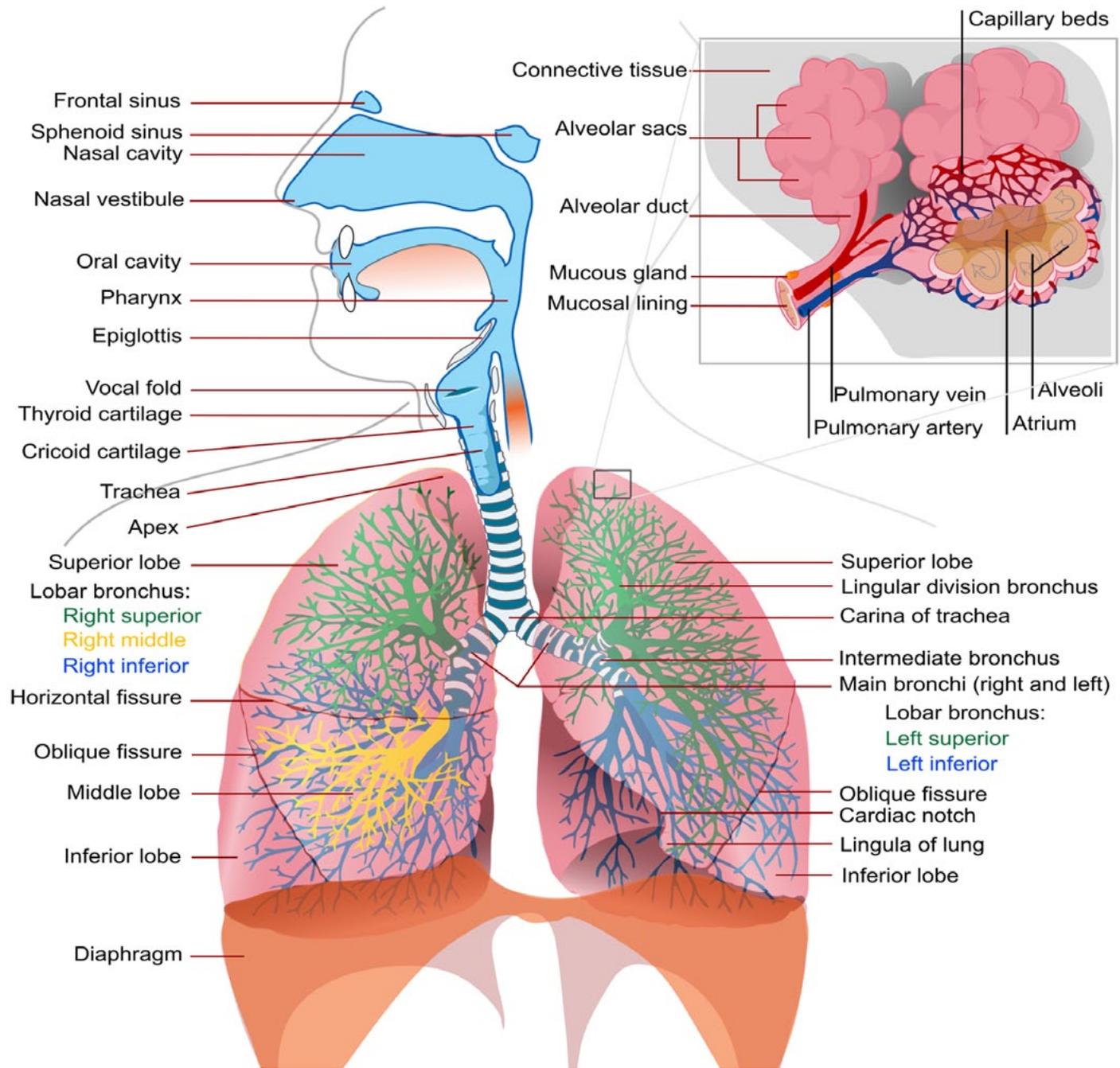


Figure 1: Human Respiratory System

Click the links below to see two short movies to understand how the diaphragm works:

Video 1- The lung simulator: The balloon represents the lungs, the plastic bottle represents the rib cage, and the white bottom plastic represents the diaphragm. When relaxed this muscle is up, when contracted it comes down. We can see that when the diaphragm contracts inhalation happens, and when it relaxes, we exhale.



Video 2- Hands showing how the diaphragm works and the belly breathing: There are other muscles involved in breathing. Some are called the muscles of inspiration because they help to open the thoracic cage (e.g., the external muscles that are connected to the ribs, sternum and clavicle). Then there are also the muscles of expiration. They are not as necessary for breathing as the ones for inspiration since after breathing in, the exhalation comes passively. For that reason breathing out is more associated with relaxation. Yet we can use certain muscles to help or even force the exhalation by increasing the quantity of exhaled air (e.g., the abdominal muscles can be used to pull the belly in and help the exhalation). This characteristic is very important for some exercises in breath work.



Some Exercises to Get Started

The best way to understand the power of our breathing is by practicing some simple exercises. You don't need anything for starting beside yourself!

- The exercises described below follow the same generic structure of instruction. They specify: If the breathing (exhalation and inhalation) is through the nose and/or the mouth.
- Posture: All 3 exercises suggest to be seated in a comfortable position with your spine straight. Other variations of these exercises could be done lying horizontally or standing upright.
- Level of breathing: All 3 exercises suggest breathing at abdominal level (deep breathing), as oppose of a shallow breath (as in a clavicular level).

- Characteristics of the exhalation (OUT) and inhalation (IN): All 3 exercises suggest to breath long and slow, with a steady regular rhythm. They differ on the length suggested for the exhalation (OUT) and inhalation (IN), giving a proportion between exhalation and inhalation – ratio OUT:IN (you will understand this point better while doing the exercises).
- Transition between IN:OUT:IN:OUT - All 3 exercises suggest a smooth transition from exhalation (OUT) and inhalation (IN) (like the swung of a pendulum).
- Breathing pauses: The 2 first exercises don't have a breathing pause, but the 3rd asks specifically for holding your breath (pause) for a few seconds (within your level of comfort).
- Other details: sound of breathing, etc.

IMPORTANT NOTE:

If you have any health problems, you should discuss using these or other breathing exercises with your physician prior to doing them. Please, always use common sense.

Let us start with the first exercise:

Abdominal Breathing

Abdominal breathing, also known as belly or diaphragmatic breathing is a form of deep breathing that actively engages the diaphragmatic muscles. With practice it allows a deep relaxation.

Start by doing it for 5 minutes.

First, check if you have to adjust your clothing (e.g., loosen tight pants, skirts or belts that may constrict your belly to expand out).

You can see [Video 1](#) and [Video 2](#) to understand how the diaphragm works during breathing.

INSTRUCTIONS:

- Breathing by the **nose**.
- Posture: **Sitting posture** (spine straight).
- Level of breathing: **Abdominal** breathing.
- Breath Out and In: **Long and slow; Regular; Ratio 1:1**.
- Transition between IN:OUT:IN:OUT - **Smooth**.
- **Without breathing pauses**.
- **Other details: Hands over the belly** (this allows you to feel with your hand your belly expanding when you inhale, and your belly contracting when you exhale). You can say to yourself “Deep, Slow, Quiet and Regular,” while you breath out and again as you breathe in.

[Click here](#) to listen to an audio of this exercise.

Pursed-Lip Breathing

Pursed-lip breathing is an easy and quick way to slow your pace of breathing to a more calm and relaxed mode. It keeps the airways open longer during exhalation, which helps to release trapped air in the lungs and allows fresh air to come in.

Start by doing it for 3-5 minutes.

INSTRUCTIONS:

- Breathing using **both mouth** (exhalation) and **nose** (inhalation).
- Posture: **Sitting posture** (spine straight).
- Level of breathing: **Abdominal** breathing.
- Breath Out and In: **Long and slow; Regular; Ratio 2:1** (the exhalation should be two times longer than the inhalation).

- Transition between IN:OUT:IN:OUT - **Smooth.**
- **Without breathing pauses.**
- **Other details:** Breathe out slowly through the mouth with your lips purse as if you are going to gently whistle. You can imagine that you are softly flickering the flame of a candle. Then inhale as if you were smelling roses. You can also count to 4 while breathing out and to 2 while breathing in.

[Click here](#) to listen to an audio instruction of this exercise.

Dr. Weil's 4-7-8 Breathing

This specific technique is recommended often by Andrew Weil, M.D., as a powerful relaxation exercise. Once you master it, in less than 2 minutes you can relax and clear your mind of emotional turmoil.

- Breathing using both mouth (exhalation) and nose (inhalation). Note: Place the tip of your tongue against the ridge of tissue just behind your upper front teeth, and keep it there through the entire exercise.
- Posture: **Sitting posture** (spine straight).
- Level of breathing: **Abdominal** breathing.
- Breath Out and In: **Long and Slow; Regular; Ratio 4-7-8** (you will understand this ratio better while doing the exercise).
- Transition between IN:OUT:IN:OUT - **Smooth**.
- **With breathing pauses** (count to 7).

INSTRUCTIONS:

- Exhale completely through your mouth, making a whooshing sound (no need to count at this point).

- Close your mouth and inhale quietly through your nose (count to **4** to yourself).
- Hold your breath in (count to **7**).
- Exhale completely through your mouth, making a whooshing sound (count to **8** to yourself).
- This is a one -breath cycle. You should start by practicing four breath cycles only. You can repeat this exercise of four breath cycles several times a day. The important thing is to keep the ration **4-7-8**. In the beginning you can count fast, with practice you will be able to slow down and take more advantages of this practice).

[Click here](#) to listen to an audio of this exercise

Go Deeper (Other Resources)

Interesting Web Links

About Breathing:

<http://en.wikipedia.org/wiki/Breath>

http://en.wikipedia.org/wiki/Respiratory_system

<http://www.coherence.com>

About the Nervous System:

http://en.wikipedia.org/wiki/Nervous_System

<http://faculty.washington.edu/chudler/auto.html>

<http://users.rcn.com/jkimball.ma.ultranet/BiologyPages/P/PNS.html>

Interesting Books, Articles and Other Resources:

Calais-Germain, B. (2006). *Anatomy of Breathing*. Seattle: Eastland Press.

<http://amzn.com/0939616556>

Clark, D. M., Salkovskis, P. M., & Chalkley, A. J. (1985). Respiratory control as a treatment for panic attacks. *Journal of Behavior Therapy and Experimental Psychiatry*, 16(1), 23-30.

<http://www.sciencedirect.com/science/article/pii/0005791685900266>

Coulter, H. D. (2001). *Anatomy of Hatha Yoga: A Manual for Students, Teachers, and Practitioners* (Chapter Two: Breathing, p. 67-138). Honesdale, PA, USA: Body and Breath.

<http://amzn.com/0970700601>

Elliott, S., & Edmonson, D. (2006). *The New Science of Breath: Coherent Breathing for Autonomic Nervous System Balance, Health, and Well-being*. Allen, TX: Coherence Press.

<http://amzn.com/0978639901>

Rama, S., Ballentine, R., & Hymes, A. (1998). *The Science of Breath: A practical guide*. Honesdale, Pennsylvania: Himalayan Institute.

<http://amzn.com/0893891517>

Short Book Review

<http://anamelikian.com/books/science-of-breath-by-rama-ballentine-hymes/>

Rossi, E. L., & Nimmons, D. (1991). *The 20-minute break: reduce stress, maximize performance, and improve health and emotional well-being using the new science of ultradian rhythms*. Los Angeles: Jeremy P. Tarcher, Inc.

<http://amzn.com/087477585X>

Weil, A. (1999). *Breathing: The Master Key to Self Healing* (2 CDs). Boulder, CO: Sounds True.

<http://amzn.com/156455726X>

Interesting Biofeedback tools:

The StressEraser Personal Portable Biofeedback System.

Programs from the Wild Divine Project (Biofeedback Software and Hardware for PC and Mac)

HeartMath emWave PC

About the Author



Ana A. Melikian, Ph.D., B.C.C., A.C.C. is a coach and speaker. She has a doctoral degree in Psychology (University of Sunderland, UK) and two Masters degrees, one in Psychotherapy from the University of Salamanca (Spain) and the other in Ericksonian Psychotherapy and Hypnosis from the Institute Erickson Madrid (Spain). Prior to moving to the United States, Melikian co-founded the first Milton H. Erickson Institute of Portugal in Oporto where she had an active private practice. She was also a lecturer at local universities (in Portugal and Spain) and has co-authored several published articles and book chapters.

From Psychotherapy, she transitioned to Life Coaching, and in order to succeed as a self-employed service professional, she studied with Michael Port to learn his Book Yourself Solid system. She decided to become a Book Yourself Solid® Certified Coach, and now the focus of her work is to help other coaches and consultants to get more clients online with ease and joy.

Ana lives now in Phoenix, Arizona with her husband and daughter.

Find more information about her at: AnaMelikian.com